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EXAMINER

THOMAS, ERIC W

ART UNIT PAPER NUMBER

2831

DATE MAILED: 12/04/2002

14

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/733,815

Applicant(s)

HUNT ET AL.

Examiner

Eric W Thomas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 37-54 and 56-70 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 37-54 and 56-70 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Introduction:

The examiner acknowledges, as recommended in M.P.E.P. 707.04, the applicant's submission of the amendment dated 11/6/02. At this point claims 37, 40-41, 46-48, 51, 60, 62, 67 have been amended; claim 55 has been cancelled; and claims 69-70 have been added. Claims 37-54, 56-70 are pending in the instant application.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

2. Claims 37-45, 47-52, 56-59, 63 and 70 are rejected under 35 U.S.C. 102(e) as being anticipated by Saegusa et al. (US 6,156,743).

Saegusa et al. disclose (in example 12 & 17) a layered structure for forming a thin layer capacitor comprising a titanium metal foil (col. 16 line 63), a dielectric material is deposited on the metal foil, wherein the dielectric material is a layer having a thickness of 1 micron (see col. 16 line 63). *Saegusa et al. does not expressly state

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that the metal foil is flexible. A copper or titanium foil having a thickness of 50 microns is inherently flexible.

Regarding claim 38, Saegusa et al. disclose the dielectric material contains between about 1 wt % and 100 wt % silica (see col. 16 line 66).

Regarding claim 39, Saegusa et al. disclose the metal foil is copper (see example 17).

Regarding claim 40, Saegusa et al. disclose a second metal layer is formed on the dielectric material layer (see col. 17 line 1).

Regarding claim 41, Saegusa et al. disclose the foil has a thickness of 50 microns.

Regarding claim 42, Saegusa et al. disclose the dielectric material is SrTiO_3 (see example 17).

Regarding claim 43, the dielectric material is a barium titanium oxide (see col. 16 line 66).

Regarding claim 44, Saegusa et al. disclose the dielectric material layer is mixed tungsten strontium oxides (col. 4 lines 15-30).

Regarding claim 45, Saegusa et al. disclose the dielectric material is an oxide or mixed oxide that contains an element Ti, Ta, Nb, Zr, W, Mo, and Sn (see col. 16 line 66).

Regarding claim 47, Saegusa do not expressly state the dielectric material is lossy having an electrical conductivity value of from 10^{-1} to about 10^{-5} amperes per cm^2 . The dielectric is formed from the same claimed dielectric material having the

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same thickness. The dielectric material inherently is lossy having an electrical conductivity value of from 10^{-1} to about 10^{-5} amperes per cm^2 .

Regarding claim 48, Saegusa et al. disclose (see example 12, & 17), a thin layer capacitor comprising, in sequence, a flexible copper metal layer, a dielectric material layer deposited on the metal layer having a thickness of 1 micron; and a second metal layer and the dielectric material comprises a cation material different from the metal from which the first metal layer is formed.

Regarding claim 49, Saegusa et al. disclose the dielectric material contains between about 1 wt % to about 100 wt % silica (see col. 18 line 41).

Regarding claim 50, Saegusa et al. disclose the first metal layer is a metal foil.

Regarding claim 51, Saegusa et al. disclose the metal foil is formed from copper.

Regarding claim 52, Saegusa et al. disclose the first metal layer is a metal foil and the second metal layer is a metal layer deposited on the dielectric material layer.

Regarding claim 56, Saegusa et al. disclose the dielectric material layer is SrTiO_3 .

Regarding claim 57, Saegusa et al. disclose the dielectric is a barium titanium oxide (see example 12).

Regarding claim 58, Saegusa et al. disclose the dielectric is a mixed tungsten strontium oxide (col. 4 lines 15-30).

Regarding claim 59, Saegusa et al. disclose the dielectric material is an oxide or mixed oxide that contains an element Ti, Ta, Nb, Zr, W, Mo, and Sn (see col. 16 line 66).

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Regarding claim 61, Saegusa do not expressly state the dielectric material is lossy having an electrical conductivity value of from 10^{-1} to about 10^{-5} amperes per cm^2 . The dielectric is formed from the same claimed dielectric material having the same thickness. The dielectric material inherently is lossy having an electrical conductivity value of from 10^{-1} to about 10^{-5} amperes per cm^2 .

Regarding claim 70, Saegusa et al. disclose the metal foil has an exposed surface.

3. Claims 48, & 62 are rejected under 35 U.S.C. 102(b) as being anticipated by Gorowitz et al. (US 5,576,925).

Regarding claim 48, Gorowitz et al. disclose a thin layer capacitor comprising, in sequence, a flexible copper metal layer, a dielectric material layer deposited on the metal layer having a thickness of 1 micron; and a second metal layer and the dielectric material comprises a cation material different from the metal from which the first metal layer is formed.

Regarding claim 62,
^ Gorowitz et al. disclose a layered structure for forming a thin layer capacitor comprising: a flexible polymer support sheet (see col. 2 lines 59-61) an unpatterned electrode flexile first metal layer (see col. 5 lines 1-10) formed on the flexible polymer support sheet, the first metal layer is formed from copper, a dielectric layer disposed on a surface of the first metal layer is 1 microns thick (see col. 4 lines 65-67), and a second metal layer formed on the flexible polymer support sheet, the metal is formed from a copper material (see col. 4 lines 65-67), the second metal layer having an exposed surface (see fig. 4). Regarding the limitation, "the first metal layer being release-able"; it

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has been held that the recitation that an element is "capable of" performing a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. In re Hutchison, 69 USPQ 138.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 46, ⁵³~~54~~, 60, 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saegusa et al. (US 6,126,743).

Regarding claims 46 and 60, Saegusa et al. disclose the claimed invention except for the first metal layer has a surface roughness on the side of the dielectric

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material layer of at least about $1.1 \text{ cm}^2/\text{cm}^2$. The examiner takes Official Notice that it is well known in the capacitor art to roughen the surface area of the metal foil on the side of the dielectric material (would enhance adhesion and mechanical bonding, and increase the surface area of the electrode). It would have been obvious to one having ordinary skill in the art at the time the invention was made to roughen the surface of the foil of Saegusa to $1.1 \text{ cm}^2/\text{cm}^2$, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 53, Saegusa et al. disclose the claimed invention except for the second metal layer is between about 0.5 and about 3 microns thick. The examiner takes Official Notice that it is well known in the capacitor art to form electrodes having various thicknesses. It would have been an obvious matter of design choice to form the second metal layer having a thickness of 2 microns, since such a modification would have involved a mere change in the size of a component, a change in size is generally recognized as being within the level of ordinary skill in the art. *In re. Rose*, 105 USPQ 237 (CCPA 1955).

Regarding claim 69, Saegusa et al. disclose the claimed invention except for the first metal layer has a surface roughness on the side of the dielectric material layer of at least about $2.2 \text{ cm}^2/\text{cm}^2$. The examiner takes Official Notice that it is well known in the capacitor art to roughen the surface area of the metal foil on the side of the dielectric material (would enhance adhesion and mechanical bonding, and increase the surface area of the electrode). It would have been obvious to one having ordinary skill in the art

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at the time the invention was made to roughen the surface of the foil of Saegusa to $2.2 \text{ cm}^2/\text{cm}^2$, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

7. Claims 54, 63-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gorowitz et al. (US 5,576,925).

Gorowitz et al. disclose the capacitor further includes a polymeric support sheet. Gorowitz et al. do not disclose the thickness of the first metal layer is a coating between about 0.5 and about 3 microns thick. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the first electrode of Gorowitz having a thickness of 2 microns, since such a modification would have involved a mere change in the size of a component, a change in size is generally recognized as being within the level of ordinary skill in the art. *In re. Rose*, 105 USPQ 237 (CCPA 1955).

Gorowitz et al. disclose the claimed invention except for the dielectric contains between about 1 wt % and about 100 wt % of silica. The examiner takes Official Notice that dielectric formed from 100 wt % of silica is well known in the capacitor art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the dielectric of Gorowitz et al. using 100 wt % of silica, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

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Regarding claim 64, Gorowitz et al. disclose the claimed invention except for the dielectric is formed from a material selected from the group consisting of BST, SrTiO₃, Ta₂O₅, TiO₂, MnO₂, Y₂O₃, SnO₂, and PLZT. The examiner takes Official Notice that dielectric formed from BST is well known in the capacitor art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the dielectric of Gorowitz et al. using BST, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding claim 65, Gorowitz et al. disclose the claimed invention except for the dielectric is formed from a material selected from the group consisting of barium titanium oxide, zirconium-doped barium titanium oxide, and tin-doped barium titanium oxide. The examiner takes Official Notice that dielectric formed from barium titanium oxide is well known in the capacitor art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the dielectric of Gorowitz et al. using barium titanium oxide since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding claim 66, Gorowitz et al. disclose the claimed invention except for the dielectric is formed from a material selected from the group consisting of Wo₃, SrO, mixed tungsten strontium oxides, BaWO₄, CeO₂, and Sr(1-x)Ba_xWO₄. The examiner takes Official Notice that dielectric formed from mixed tungsten strontium oxides is well known in the capacitor art. It would have been obvious to one having ordinary skill in

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the art at the time the invention was made to form the dielectric of Gorowitz et al. using mixed tungsten strontium oxides since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding claim 67, Gorowitz et al. disclose the claimed invention except for the first metal layer has a surface roughness of at least about $1.1 \text{ cm}^2/\text{cm}^2$. The examiner takes Official Notice that it is well known in the capacitor art to roughen the surface area of the metal foil on the side of the dielectric material (would enhance adhesion and mechanical bonding, and increase the surface area of the electrode). It would have been obvious to one having ordinary skill in the art at the time the invention was made to roughen the surface of Gorowitz to $1.1 \text{ cm}^2/\text{cm}^2$, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 68, Gorowitz et al. disclose the claimed invention except for the dielectric layer is lossy having an electrical conductivity value of from about 10^{-1} to about 10^{-5} amperes per cm^2 . It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the dielectric of Gorowitz et al. using with a material; have is lossy having an electrical conductivity value of about 10^4 since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Response to Arguments

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Applicant's arguments with respect to claims 37-54, 56-70 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric W Thomas whose telephone number is (703) 305-0878. The examiner can normally be reached on Mon & Sat 9:00AM - 9:30PM; Tues-Fri 5:30PM-10:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 703-308-3682. The fax phone numbers

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for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

ewt

November 20, 2002

Klean A. Beuchamp 12/2/02